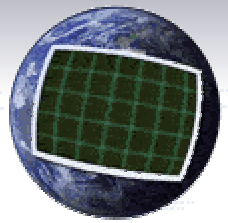
NOAA Satellite Direct Readout

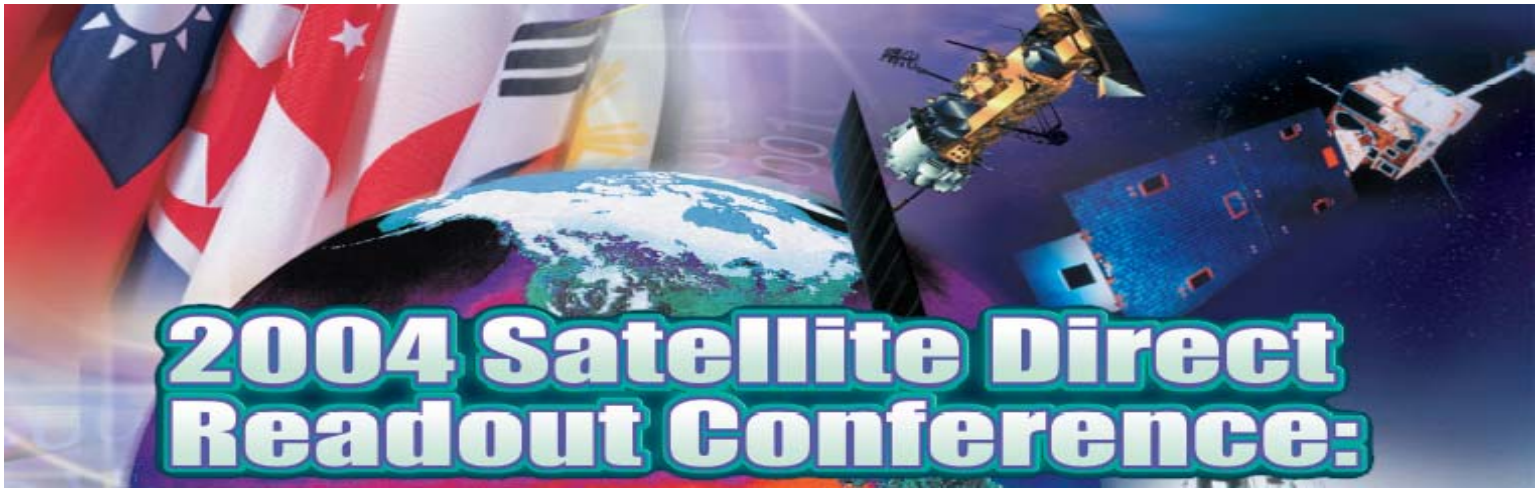
2004 Satellite Direct Readout Conference / December 6-10, 2004

Darrell R. Robertson / NOAA Satellite and Information Service

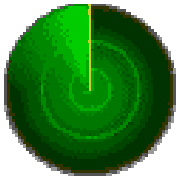
NOAA Satellite Direct Readout



- **Provide timely access to global environmental data and information services directly from NOAA satellites**
  - Direct Readout is used to distribute raw or minimally preprocessed satellite data to anyone anywhere in the world, in view of the spacecraft, in real or near-real time



NOAA Satellite Direct Readout Public Benefits

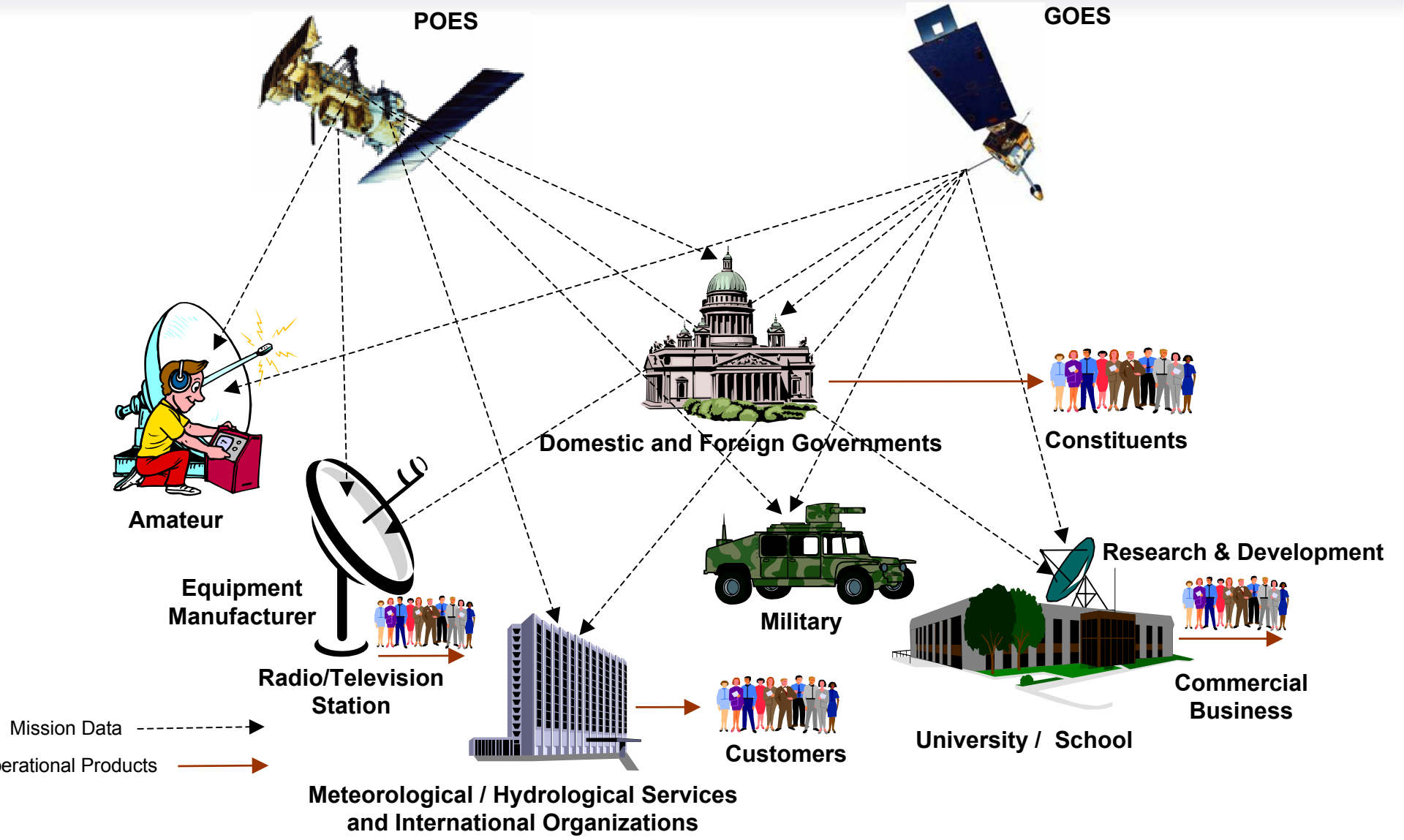


- Supports real-time forecasting and warning capabilities for hydrological and meteorological services.
- Provides remote areas and developing Countries with relatively inexpensive access to local, timely, and critical weather information
- Promotes commerce through user terminal prototype and software development so equipment manufacturers and commercial businesses can focus on value added services
- Facilitates educational outreach and promotes Earth sciences
- Fosters international cooperation and good will

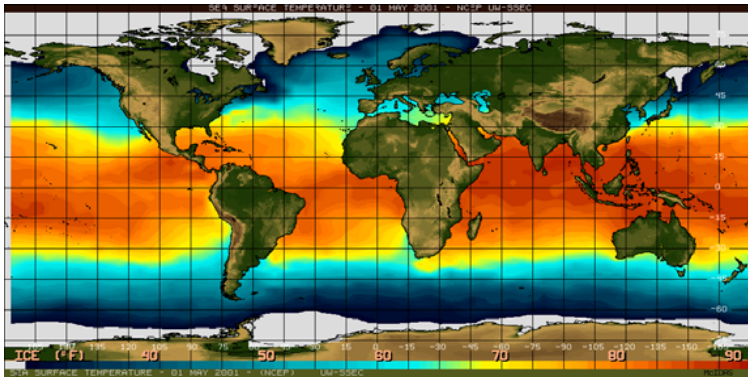
Satellite Direct Readout Directives, Agreements and Authorities

- **International agreements through the World Meteorological Organization (WMO) and Coordinating Group on Meteorological Satellites (CGMS) (WMO Resolution 40)**
  - Direct readout requirements are derived from the United States adoption of WMO Resolution 40. WMO policy and practice for the exchange of meteorological and related data and products adopts in part: "Members shall provide on a free and unrestricted basis essential data and products which are necessary for the provision of services in support of the protection of life and property and the well-being of all nations…"
- **Presidential Directive: The White House National Science and Technology Council's National Space Policy (NSTC-8)**
  - NSTC-8 issued on September 19, 1996 provides guidelines for the U.S. Government to "(3)(c)(ii)…ensure the efficient collection and dissemination of the widest possible set of environmental measurements" and "(3)(c)(iv) support, as appropriate, the public, non-discriminatory direct read-out of data from Federal civil systems."
- **Data sharing agreements with military weather services (DOD Convergence Agreement)**

Basic Satellite Data Flow Overview

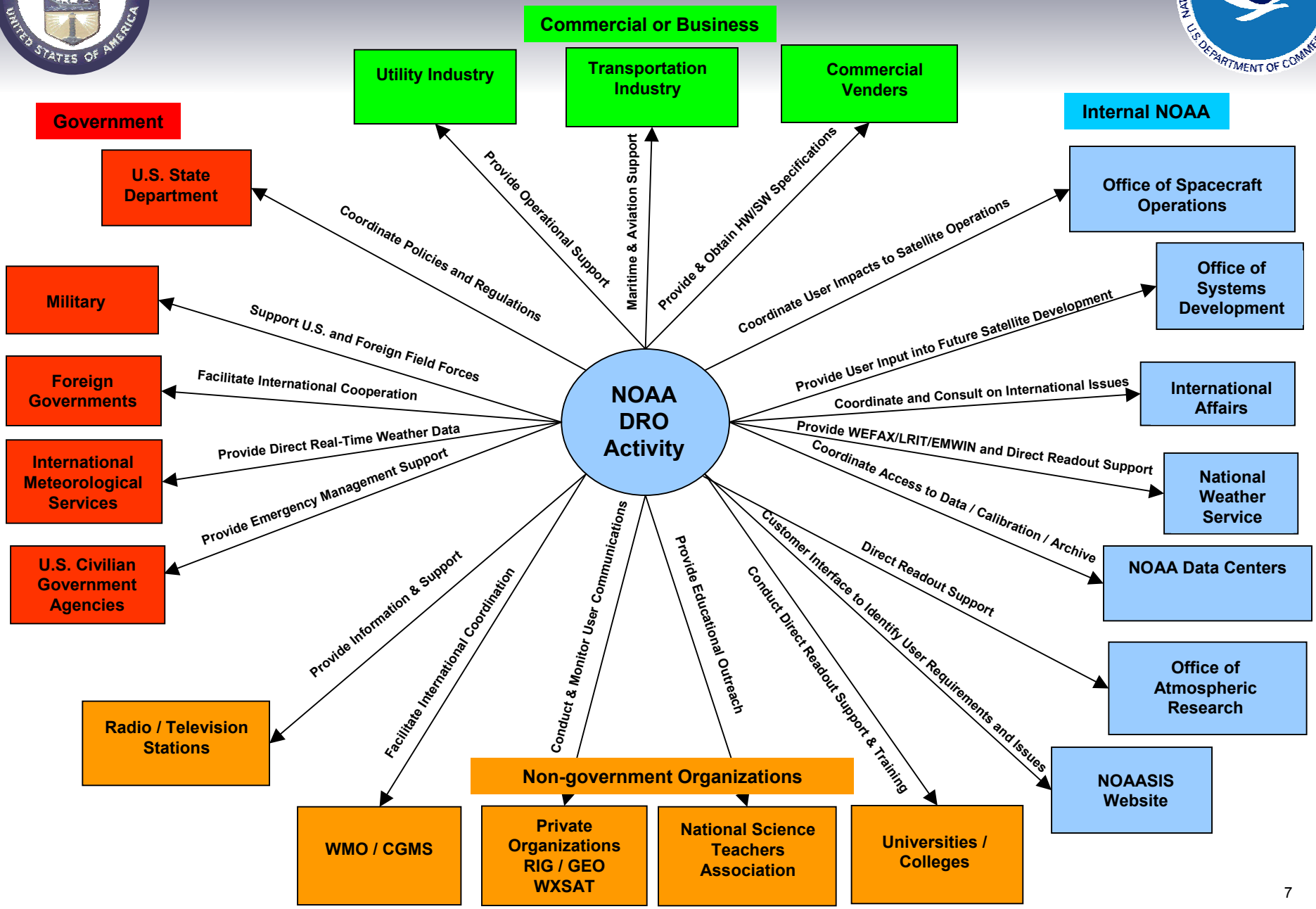


NOAA Direct Readout Services
GVAR / LRIT / HRPT /APT



- Facilitate real-time access to NOAA data
- Coordinate with the WMO and CGMS to facilitate international cooperation
- Coordinate with an extremely diverse, global user community
- Provide customer support and serve as a user interface to NOAA
- Maintain a voluntary list of equipment manufacturers
- Disseminate timely operational Web-based information to users
- Identify user requirements and provide user input into NOAA spacecraft operations
- Conduct education and outreach activities

NOAA Direct Readout Relationships



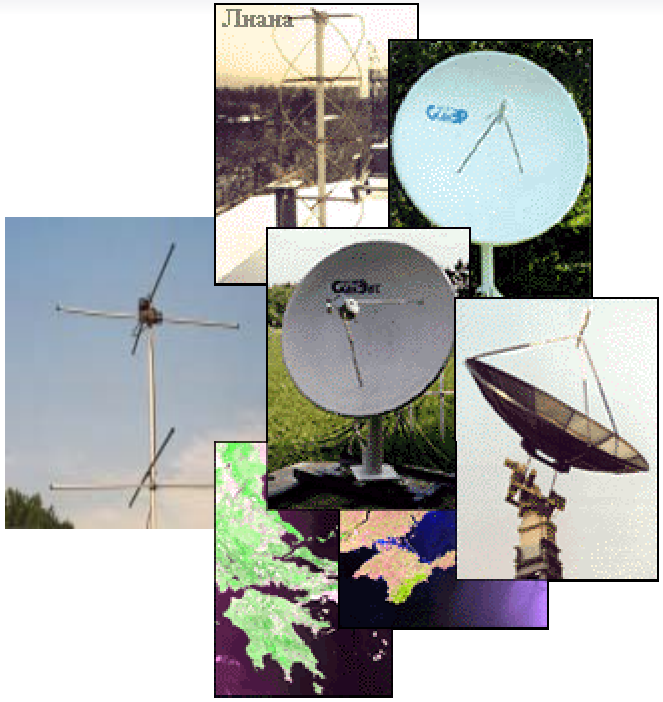
Identifying Customers and their Requirements

- **NOAASIS Web site http://noaasis.noaa.gov/NOAASIS**
  - 700-800 Email queries annually
  - Direct Readout User Survey
- **Online User Survey and Database**
- **World Meteorological Organization (WMO)**
- **User Lists (RIG-L, WXSAT-L, GEO-L)**
- **User Conferences and Workshops**
- **Educational Outreach**
- **Customer Contacts**
  - Email, fax, telephone, meetings

Global Direct Readout Receivers

Estimates Anyone?

- APT = 5,000 – 10,000
- HRPT = 1,000 – 2,000
- WEFAX = 5,000 – 10,000
- LRIT = (WEFAX users?)
- HR / GVAR = 1,000 – 2,000



Registration is voluntary.

NOAA has implemented a web based registration on NOAASIS to better characterize the user community. (Currently in: English, Spanish, French, and Portuguese)

http://directreadoutsurvey.noaa.gov/user/survey_form_english.jsp

NOAA Satellite Receiving Station User Survey

Languages: Spanish French Portuguese

1. Select one user category that best describes your activity:

Amateur, Commercial/Business, Equipment or Software Manufacturer, Government Meteorological Organization
Other Civil Government, Military, High School/Technical School/Elementary School, University or College
Television or Radio Broadcast Station, Other

1a. If Equipment or Software manufacturer is selected, please check all products or services below that apply:

APT, LRPT, HRPT, AHRPT, WEFAX, LRIT, GOES GVAR
Software
Image interpretation services
Complete 'turn key' installations

2. What data types do you receive? Please check all products or services below that apply

APT, LRPT, HRPT, AHRPT, WEFAX, LRIT, GOES GVAR, EMWIN
Do not know or Not Applicable

3. What is the location of your receiving station antenna?

Not Applicable (no antenna but receive data via the internet, cable, etc.)

LATITUDE LONGITUDE ELEVATION

4. User Information

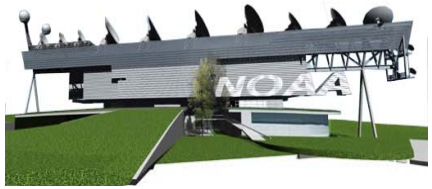
Name (Last, First) Title Organization Division Country
Street Address City/Town State/Province Postal/ZIP Code
Telephone FAX Email Address

5. Describe your data application (what do you use it for?)

Thank you for completing this questionnaire.

Future Outlook
Data Service Transitions

- **GOES I/M to GOES N/O/P**
  - Transition from WEFAX to LRIT
  - Transition of EMWIN
- **GOES N/O/P to GOES R**
  - Implement a new direct readout service for GRB at 3.5 MBps
- **POES to NPOESS**
  - Current direct readout services to be transitioned
    - POES program to cooperate with Metop (IJPS)
    - HRPT users may upgrade for Metop
    - HRPT users will be required to purchase new HRD or LRD systems or find an alternative method to obtain real time data if they want to continue operations
- **NOAA Support to Users during Transitions from Legacy Systems**
  - Minimize impacts to current users
  - Distribute information
  - Provide guidance
  - Answer questions
  - Identify user requirements



Future NOAA Satellite Operations Facility

- **Develop alternate means for disseminating environmental data (ADM System) that meets real time requirements**
  - CGMS ADM study conducted by NOAA to evaluate options
  - Phase II ADM study to evaluate current and future systems

Planned NOAA Field Terminal Office

- **Continue to Support Legacy NOAA Satellite Systems**
- **Support NPOESS Implementation and Operations**
- **Identify NPOESS user interest in LRD and HRD Field Terminals**
- **Participate in Field Terminal Concept of Operation Reviews**
- **Establish an Electronic User Database**
  - Initial user database is on-line and operational on NOAASIS
- **Conduct and Attend User Conferences to Identify User Needs**
  - Satellite Direct Readout Users Conference (every two years?)
- **Scope NOAA Field Terminal Office Roles and Responsibilities**
  - Develop Procedures to Interface with other Agency Field Terminal Offices
  - Identify Level of Support to Service Global Civilian Community Needs
  - Distribution of Encryption Keys in a Reliable and Timely Manner
  - Maintenance, Control and Distribution of Data Processing Software
  - Develop Standard Operating Procedures and Performance Metrics

NOAA Satellite and Information Service Direct Readout Program Contacts

- **For more information, contact:**
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